

CLAIMS

What is claimed is:

1. A tool for installing and removing a flexible flat cable with respect to a protective sleeve, the tool comprising:

a body having a longitudinal axis and a slot formed in the body longitudinally about the axis, the slot having a generally arcuate shape with a closed end on one side of the body, and an open end on an opposite side of the body, such that the open end forms a receptacle that is adapted to allow lateral ingress and egress of the flexible flat cable; and

a shelf formed in the body adjacent to the open end of slot that is adapted to capture a side edge of the flexible flat cable in order to retain the flexible flat cable in the body when the flexible flat cable is located in the slot.

2. The tool of claim 1, wherein the arcuate shape of the slot is semi-circular, spans approximately 180 degrees, and is adapted to support an entire width of the flexible flat cable.

3. The tool of claim 1, wherein the slot defines an inner wall having an inner radius, and an outer wall having an outer radius, such that the outer radius is greater than the inner radius, and the shelf is formed at a shelf radius that is greater than a radius of the open end.

4. The tool of claim 1, wherein the slot segments the body into a lower portion and an upper portion, and the upper portion is cantilevered and flexible relative to the lower portion.

5. The tool of claim 4, wherein the lower and upper portions of the body have edges that are polished or beveled to avoid scuffing the flexible flat cable.

6. The tool of claim 1, wherein the body has a flat lower surface and a curved upper surface.

7. A system for installing and removing a flexible flat cable from a protective sleeve, the protective sleeve having side walls and a longitudinal opening with the flexible flat cable being positioned in the protective sleeve and extending laterally between the side walls, and the flexible cable having an exposed portion that is not located in the protective sleeve, the system comprising:

a tool having a slot extending therethrough in a longitudinal direction, the slot having an arcuate shape in a lateral direction with a closed end and an open end, the open end forming a receptacle for allowing lateral ingress and egress of the flexible flat cable, and the tool also having a shelf formed adjacent to the open end for capturing a side edge of the flexible flat cable to retain the flexible flat cable in the tool when the flexible flat cable is located in the slot; wherein the flexible flat cable is removed from the protective sleeve by:

inserting the side edge of the flexible flat cable into the open end of the tool, and guiding the flexible flat cable through the slot such that a longitudinal segment of the flexible flat cable is formed into an arcuate shape, and moving the tool longitudinally along a length of the flexible flat cable toward the protective sleeve such that the longitudinal segment of the flexible flat cable in the arcuate shape transitions and moves smoothly with the tool as the flexible flat cable passes through the tool, and extracting the flexible flat cable from the longitudinal opening of the protective sleeve; and wherein the flexible flat cable is installed in the protective sleeve by:

moving the tool longitudinally along a length of the flexible flat cable away from the protective sleeve such that the longitudinal segment of the flexible flat cable in the arcuate shape transitions flattens out from the arcuate shape and into the longitudinal opening in the protective sleeve between the side walls as the tool is moved away from the protective sleeve.

8. The system of claim 7, wherein the longitudinal segment of the flexible flat cable defines a chord having a dimension that is less than a lateral dimension of the longitudinal opening in the protective sleeve.

9. The system of claim 7, wherein the tool is used while a majority of the flexible flat cable is rolled up.
10. The system of claim 7, wherein only that portion of the flexible flat cable in need of attention is removed from the protective sleeve.
11. The system of claim 7, wherein the tool can be applied to and engage a longitudinal portion of the flat cable located in the sleeve such that the entire flexible flat cable need not be removed from the protective sleeve.
12. The system of claim 7, wherein the flexible flat cable is not creased or folded by the tool.
13. The system of claim 7, wherein the slot has a circumferential length extending from the closed end to the shelf that is approximately equal to a lateral dimension of the flexible flat cable.
14. The system of claim 7, wherein the arcuate shape of the slot is semi-circular, spans approximately 180 degrees, and supports an entire lateral width of the flexible flat cable.
15. The system of claim 7, wherein the slot defines an inner wall having an inner radius, and an outer wall having an outer radius, such that the outer radius is greater than the inner radius, and the shelf is formed at a shelf radius that is greater than a radius of the open end.

16. The system of claim 7, wherein the slot segments the body into a lower portion and an upper portion, and the upper portion is cantilevered and flexible relative to the lower portion.

17. The system of claim 7, wherein the lower and upper portions of the body have edges that are polished or beveled to avoid scuffing the flexible flat cable.

18. A method of removing a flexible flat cable from a protective sleeve, the protective sleeve having side walls and a longitudinal opening with the flexible flat cable being positioned in the protective sleeve and extending laterally between the side walls, and the flexible cable having an exposed portion that is not located in the protective sleeve, the method comprising:

- (a) inserting a side edge of the exposed portion of the flexible flat cable into an open end of a tool;
- (b) guiding the flexible flat cable through a slot in the tool such that a longitudinal segment of the flexible flat cable is formed into an arcuate shape with a smooth radius that protects an integrity of the flexible flat cable;
- (c) moving the tool longitudinally with respect to and along a length of the flexible flat cable such that the longitudinal segment of the flexible flat cable in the arcuate shape transitions and moves smoothly with the tool as the flexible flat cable passes through the tool, while other portions of the flexible flat cable on either longitudinal side of the longitudinal segment transition to a flat shape; and
- (d) extracting the flexible flat cable from the longitudinal opening of the protective sleeve.

19. The method of claim 18, further comprising the steps of installing the flexible flat cable in the protective sleeve by reversing steps (d) through (a), such that the flexible flat cable flattens out from the arcuate shape and into the longitudinal opening in the protective sleeve between the side walls as the tool is moved away from the protective sleeve.

20. The method of claim 18, wherein, in step (c), the longitudinal segment of the flexible flat cable defines a chord having a dimension that is less than a lateral dimension of the longitudinal opening in the protective sleeve, such that, in step (d), the flexible flat cable can be removed from the protective sleeve.

21. The method of claim 18, wherein the tool is used while a majority of the flexible flat cable is rolled up.
22. The method of claim 18, wherein only that portion of the flexible flat cable in need of attention is removed from the protective sleeve.
23. The method of claim 18, wherein the tool can be applied to and engage a longitudinal portion of the flexible flat cable located in the protective sleeve such that the entire flexible flat cable need not be removed from the protective sleeve.
24. The method of claim 18, wherein the flexible flat cable is not creased or folded by the tool.